A COMPARISON OF AVIAN DATA FROM TWO WILDLIFE REHABILITATION CENTERS IN INDIANA

By

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An Honors Thesis (HONRS 499)

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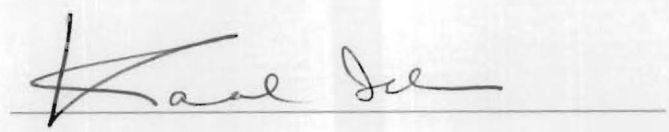

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ABSTRACT

Avian wildlife rehabilitation is a common practice in the United States and the need for it is increasing. Records gathered by wildlife rehabilitation centers can provide information on the species, age, admission date, cause of injury, disposition (fate), and location of collection for individuals admitted to centers. Analysis of these data may help rehabilitators assess their yearly success, costs, and efforts, while also providing information on local abundance, distribution and threats to local wildlife (Shine and Koenig 2001). This study examined the characteristics often observed in avian wildlife admitted for rehabilitation in Indiana by generating descriptive statistics, which were used to analyze and compare avian admissions data obtained from two wildlife rehabilitation centers. Characteristics investigated were: species, age, disposition, seasonal timing, cause of injury, location of capture, and rescuer information. Admissions to the centers were dominated by a few species that were consistently brought in. The most common age groups brought into Wildcat Wildlife Center Inc. during 2002-2003 were hatchling/nestling non-raptor and adult non-raptor. However, the age of the individual was not independent of the month, disposition, or species of the individual admitted to Wildcat Wildlife Center Inc. during 2002 or 2003. The release rate varied greatly among species at both centers for all years and also differed among the two centers sampled. The highest proportion of individuals brought into Wildcat Wildlife Center Inc. during 2002-2003 occurred in May and June, while the lowest proportion was brought in during November-February. Information obtainable from wildlife rehabilitation data, including topics not addressed in this study, should be further investigated to provide potentially valuable information to both rehabilitators and biologists.

INTRODUCTION

The number of encounters between humans and wildlife is increasing as humans move into and damage wildlife habitat due to urban sprawl (Philcox et al. 1999). Wildlife rehabilitation is the process of providing care to injured, orphaned, or displaced wildlife so that they may survive when released back to their native habitat (The Wildlife Rehabilitator Recruiting Project). Many of these rescued animals have been injured by humans, pets, or vehicles or had their habitat destroyed (The Wildlife Rehabilitator Recruiting Project). Wildlife rehabilitation focuses on the fate of individual animals that are rescued by wildlife rehabilitators (Shine and Koenig 2001). Wildlife rehabilitators are trained to capture, rescue, handle, transport and care for wildlife, while working closely with veterinarians (The Wildlife Rehabilitator Recruiting Project), and possessing the necessary permits (state and federal) to temporarily possess and care for wildlife without violating the Endangered Species Act, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act (United States Fish and Wildlife Service or U.S.F.W.S.). Most wildlife rehabilitators have home-based, non-profit facilities where they volunteer their time and resources.

Avian wildlife rehabilitation generates significant activity throughout the United States. Over 95,000 birds were treated by 541 centers throughout the U.S. in 1997, while 3,250 Special Purpose Rehabilitation Permits for the rehabilitation of migratory birds were issued by the U.S.F.W.S. in 1996 (NWRA 2001). Moreover, birds comprised 78 percent of the wildlife noted by survey respondents in a study by Casey and Casey (2000). Since avian wildlife rehabilitation is a common practice, it is important to understand why there is a need for it and what the outcome may be for the avian individuals treated.

Data on characteristics of individuals that are brought in are often recorded by wildlife rehabilitators. Species, age, admission date, medical condition, and location of collection, are

often recorded at the time of admittance, as well as, information on the person who collected the individual. Many rehabilitation centers compile such data, but due to lack of time and funding, these data are seldom analyzed or even summarized. This is unfortunate, because there may be much valuable information gained from these data sets and their analyses. Obtaining knowledge on the characteristics at admittance and disposition of avian individuals brought into rehabilitation centers may help rehabilitators assess their yearly success, costs, and how they may better narrow or concentrate their efforts. (Disposition is defined as the fate of an individual and is usually recorded in the following separate categories: released, transferred, pending, euthanized, and died.) Wildlife rehabilitation data may also provide important information on local abundance and distribution of taxa, as well as, the nature of threats to local wildlife (Shine and Koenig 2001).

The species of the avian individual admitted is identified in most situations by rehabilitation centers because a summary of species treated must be reported to the U. S. Fish and Wildlife service on a yearly basis in accordance with the Migratory Bird Treaty Act. Nevertheless, a summary of species admitted is important for the simple understanding of the species composition and diversity of individuals treated. The efforts of many centers are strongly focused on a small number of taxa every year. The biological characteristics and medical sensitivity of these dominant species may have an effect on descriptive statistics determined for the center for all individuals treated such as disposition and cause of injury. For example, an excess in Eastern Screech-Owls admitted may result in a center treating many severely injured birds that will likely die because Eastern Screech-Owls tend to have a high incidence of vehicle-related injury.

The disposition of the individual is always recorded by avian rehabilitators because this information, as well as, the corresponding summary of species treated must be reported to the

U.S.F.W.S. on a yearly basis. When reporting disposition information to the U.S.F.W.S., a special category is distinguished for those birds that are unreleasable but considered viable. This is a rare occurrence and in this situation rehabilitators must obtain permission from the U.S.F.W.S. to keep an individual as a permanent resident for educational purposes. The disposition of a wildlife individual may be related to some characteristics of the individual upon admittance such as age, reason for injury, or species identification. Shine and Koenig (2001) found that rate of release is associated to the cause of injury of rehabilitated reptiles.

Information on the cause of injury of an individual is often recorded upon admittance to a wildlife rehabilitation center. Many wildlife injuries seen at rehabilitation centers are attributable to humans. Nest tree destruction, vehicle collisions, pet attacks, poisoning, window collisions and non-target trapping or shooting often are the reasons wildlife are brought to rehabilitation centers (NWRA 2001). In fact, estimates indicate over 75% of the animals (of all species) cared for in rehabilitation centers are affected in some manner by human activities (NWRA 2001). Vehicle collisions are one of the most commonly encountered causes of injury in wildlife and the number of wildlife deaths attributable to road traffic accidents is thought to be increasing, due to increasing traffic flows (Philcox et al. 1999). Several studies in Europe suggested that the toll of traffic on wild animals can be serious and may be critical in the decline of some populations, particularly those species with large home ranges (Philcox et al. 1999). Data obtained from wildlife rehabilitation centers may allow for assessment of the significance of vehicle and other human-related injury to wildlife.

Often times the cause of injury to wildlife can vary seasonally. For example, it has been found that bird injury due to collisions with fences is greater in spring and summer when courtship display and territorial behavior occurs (Baines and Summers 1997). Road traffic injury to wildlife has been associated with season, as well (Philcox et al. 1999). Cause of injury may

also differ among species. Baines and Summers (1997) found that game birds are the main birds at risk for collisions with fences in Scotland. Cause of injury can also vary with age. For example, injury by pets has been linked to size (small) and age (young) of wildlife individuals (Shine and Koenig 2001).

There may be other seasonal fluctuations in wildlife rehabilitation activity. The date of an individual's admission may be associated with its age since an influx of young birds is admitted during the breeding season. Seasonal fluctuations may also be observed in the cause of injury and the types of species admitted. The differences in the seasonal timing of records reflect the biological attributes of the species associated with them (Shine and Koenig 2001).

There is an incredible lack of information on wildlife rehabilitation in the published literature. It seems that lack of time and money available to rehabilitators has inhibited the analysis of this rich source of wildlife data, when there may in fact be important conclusions that could be drawn from such analyses. The objective of this study was to generate descriptive statistics used to analyze and compare avian admissions data obtained from two wildlife rehabilitation centers; the analyses and comparisons allowed for a closer look at the characteristics often observed in avian wildlife admitted for rehabilitation in Indiana. The specific characteristics included in the analyses were: species, age, disposition, seasonal fluctuations, cause of injury, location of capture, and rescuer information.

METHODS

Data collection

Data used in this study were obtained from the following two wildlife rehabilitation centers: Wildlife Resqu Haus Inc., located in Yorktown, Indiana and Wildcat Wildlife Center Inc., located in Lafayette, Indiana. These centers were chosen because they are both in Northern

Indiana, they treat similar fauna and they both kept detailed admissions data for recent years. Data were obtained from each center in the form of admissions listings for the years of 2001-2003. These data were extensive, with information (e.g. cause of injury, location of rescue, age, disposition, etc.) for each avian individual (2,662 total individuals included in this study) brought into the center. Since time is usually limited in recordkeeping by rehabilitators, data recorded are often very general. Individuals were sometimes only identified to the family or genus level, whereas, others were identified to species. For example, "wren" and "unidentified hummingbird" were common entries. Some categories also had an abundance of "unknown" entries (e.g., sex). Nevertheless, data were assumed to be fairly accurate and of good quality because it's collectors were meticulous in their records and trained in species identification and wildlife injury.

Computation of Sample Statistics

Sample statistics for all variables of interest were computed for both centers (Appendices 1-38). Some data for certain centers/years was limited; thus, the extent of calculations made for each center/year varies. For example, there were no data available for the age or rescuer variables for the Wildlife Resqu Haus Inc. 2001-2003 data or for the Wildcat Wildlife Center 2001 data. The Wildcat Wildlife Center Inc. 2001 data also lacked cause of injury information. Due to the smaller sample size seen at Wildlife Resqu Haus Inc., the counts used in the release rate, most/least common species and cause of injury calculations were grouped for the years 2001-2003. However, the same calculations were done separately for each year, as well as, for all three years for Wildcat Wildlife Center due to a large sample size.

All individuals admitted were included in the rescuer, age, seasonal, most/least common species admitted, and cause of injury calculations where data were available. Percentages shown

in these appendices simply divide the count of the individuals falling in each class for the variable of interest by the total individuals admitted that year or time period. Occasionally an individual would be listed as "unknown" for one of these variables. In this case there is a separate category for "unknown" individuals listed in the appendix corresponding with this variable and time period.

The cause of injury variable included 8 separate categories: pet-related, vehicle-related, orphaned/fell from nest/abandoned, storm-related, disease, human attack, entrapment, and other. When analyzing the Wildlife Resqu Haus Inc. data, individuals admitted which were suspected of or diagnosed with West Nile Virus (WNV) were separately counted since these individuals were specifically identified in the data set. There is no count for individuals with WNV for Wildcat Wildlife Center Inc. because all diseased individuals were simply recorded with "disease" as their cause of injury, regardless of what type of sickness they had. Since it is assumed that some of these birds may have had WNV, the WNV and other disease category for the Wildlife Resqu Haus Inc. data have been lumped into one general "disease" category to facilitate comparison with the other center. The individuals admitted for reasons of abandonment, falling from the nest or being orphaned have been lumped in the counts because these are all baby-related situations that are easily confused by the average person rescuing an individual. The pet-related category almost always included individuals listed as "attacked by cat" or "attacked by dog". Meanwhile, the human attack category includes any direct attack, interference, or injury to an individual due to a human. Individuals in this category were often listed as "gunshot wound", "kidnapped", "beaten", "nest destroyed by humans", or simply "human attack".

The most common species brought into the centers were determined by obtaining counts of all species admitted at the center of interest for the time period of interest and singling out the

6 species with the highest counts. The least common species brought into the center is simply a list of the species that had only one individual admitted at the center of interest for the given time period.

Release is the ultimate success in wildlife rehabilitation. Thus, as a measure of success at these centers, release rate was calculated using disposition information. Not all individuals admitted were included in the release rate calculation. Individuals that were listed as escaped, unknown, transferred or pending were omitted since their disposition was not known. These individuals were counted and listed in the release rate appendices as "fate unknown" (e.g. Appendix 13), but were not included in the overall release rate calculation. Release rate was calculated as (released wild animals + placed domestic animals)/(individuals that died). Placed domestic animals were included in the successful category because their survival and placement into a facility is their ultimate successful outcome since they cannot and should not be released into the wild. Thus, release rate was essentially calculated as success/failure. Individuals that died included individuals that were euthanized, dead on arrival, and those which died of natural causes while in care.

The total types of species treated is a count of the different types of taxa distinguished at the center during the given time period. It should be noted that not all individuals were identified to species. Some were identified to genus or to family, (e.g. "wren"). Thus, this count may not reflect the actual diversity of species treated, but it represents the count of taxa that was distinguished.

The endangered species treated at each center were determined using the list of endangered species posted by the Indiana Department of Natural Resources (IDNR) in 2004.

The age variable was assessed for Wildcat Wildlife Inc. 2002-2003 by generating counts for each age group (egg, hatchling/nestling, adult non-raptor, juvenile raptor, adult raptor, etc.) and dividing those counts by the total individuals brought in during the given year.

The seasonal fluctuations were assessed for Wildcat Wildlife Inc. 2001-2003 by generating counts for individuals brought in during each month and dividing those counts by the total individuals brought in during the given year.

Figures 1 and 2 were generated using ArcGIS 9 software. The data collected from Wildcat Wildlife Center Inc. included county information for each individual admitted for the years 2002-2003. Geocoding, using a file-based, self-created address locator, which used an Indiana county template as reference data, was used to plot frequencies of individuals collected in each county. All shape files and city attribute data were obtained through the Ball State University Department of Geography.

Statistical Analysis

X^2 tests of independence were used to test for the following comparisons at Wildcat Wildlife Center Inc. during 2002 and 2003: a) an association between individuals falling into the age classes juvenile (includes egg, nestling, fledgling, juvenile raptor, and precocious hatchling) or adult (includes adult raptor and adult avian non-raptor) and the month they were admitted, b) an association between individuals falling into the age classes juvenile or adult and their disposition (classes: released and died), c) an association between individuals falling into the age classes juvenile or adult and their species identification (classes: the six most common species for that particular year), d) an association between individuals falling into the disposition classes released or died and their species identification (classes: the six most common species for that

particular year), and e) an association between individuals falling into the disposition classes released or died and their reason for admittance (8 classes: pet-related, vehicle related, etc.).

X^2 tests of homogeneity ($\alpha = 0.05$) were used to test for significant differences for the following comparisons: a) proportions of individuals released from both centers, b) proportions of individuals brought into Wildcat Wildlife Center Inc. for the designated groups of reasons during 2002 and 2003, c) proportions of individuals brought into Wildlife Resqu House Inc. for the designated groups of reasons from 2001-2003, and d) proportions of individuals admitted to Wildcat Wildlife Center Inc. during each month from 2001-2003. All interpretation of results is based on Pearson X^2 values.

RESULTS

Location of rescues

The location of each center is shown in Figures 1 and 2, but only the locations of individuals brought into Wildcat Wildlife Inc. during 2002 and 2003 are displayed. Individuals were most frequently brought into Wildcat Wildlife Center during 2002 and 2003 from counties closest to the center. The frequency of individuals being brought into the center from the given counties grew less as the distance from the center increased (Figures 1 and 2). Some individuals were brought into the center from as far as 99 km in 2002 and 2003 (Figures 1 and 2).

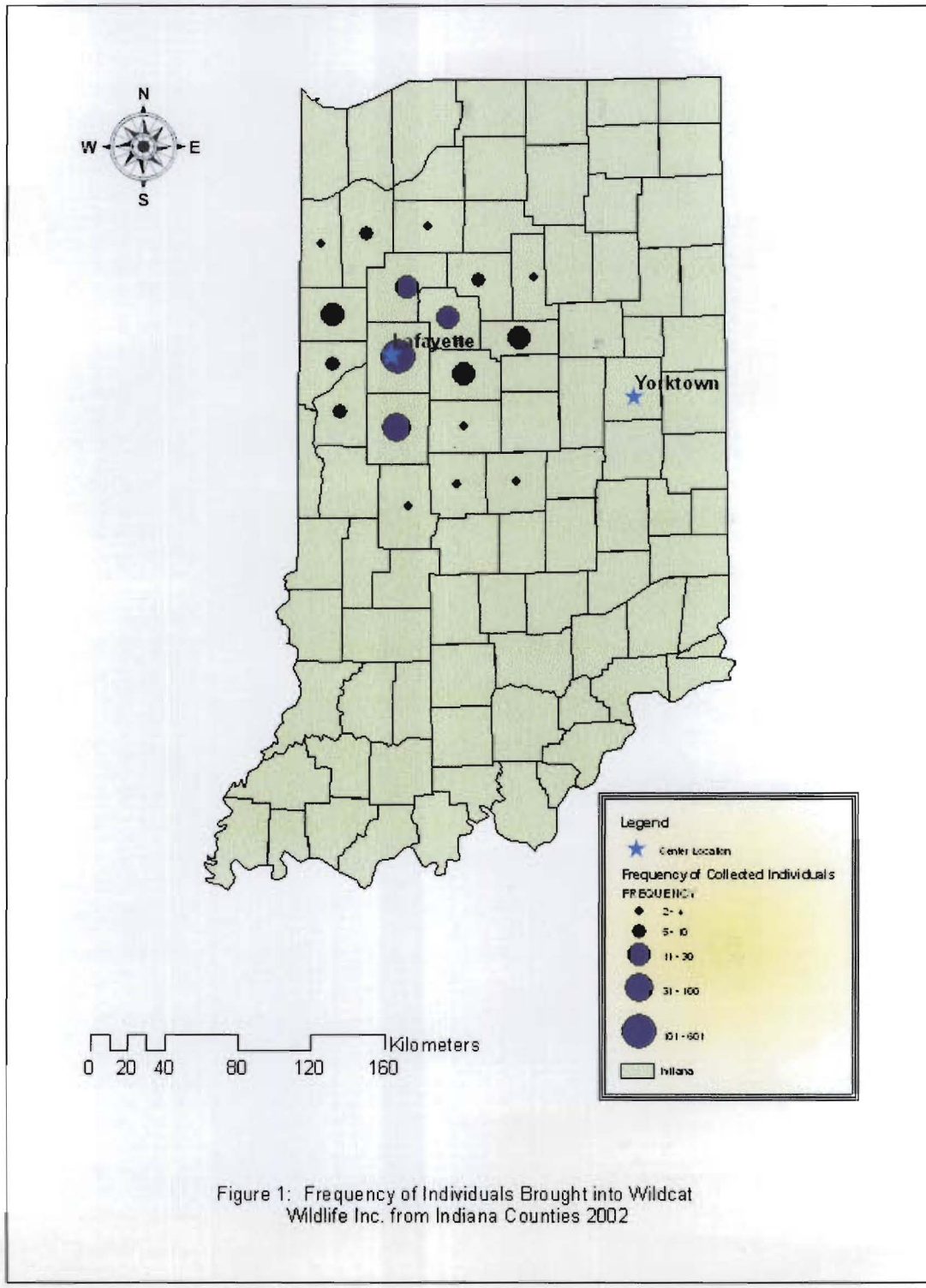

Figure 1: Frequency of Individuals Brought into Wildcat Wildlife Inc. from Indiana Counties 2002

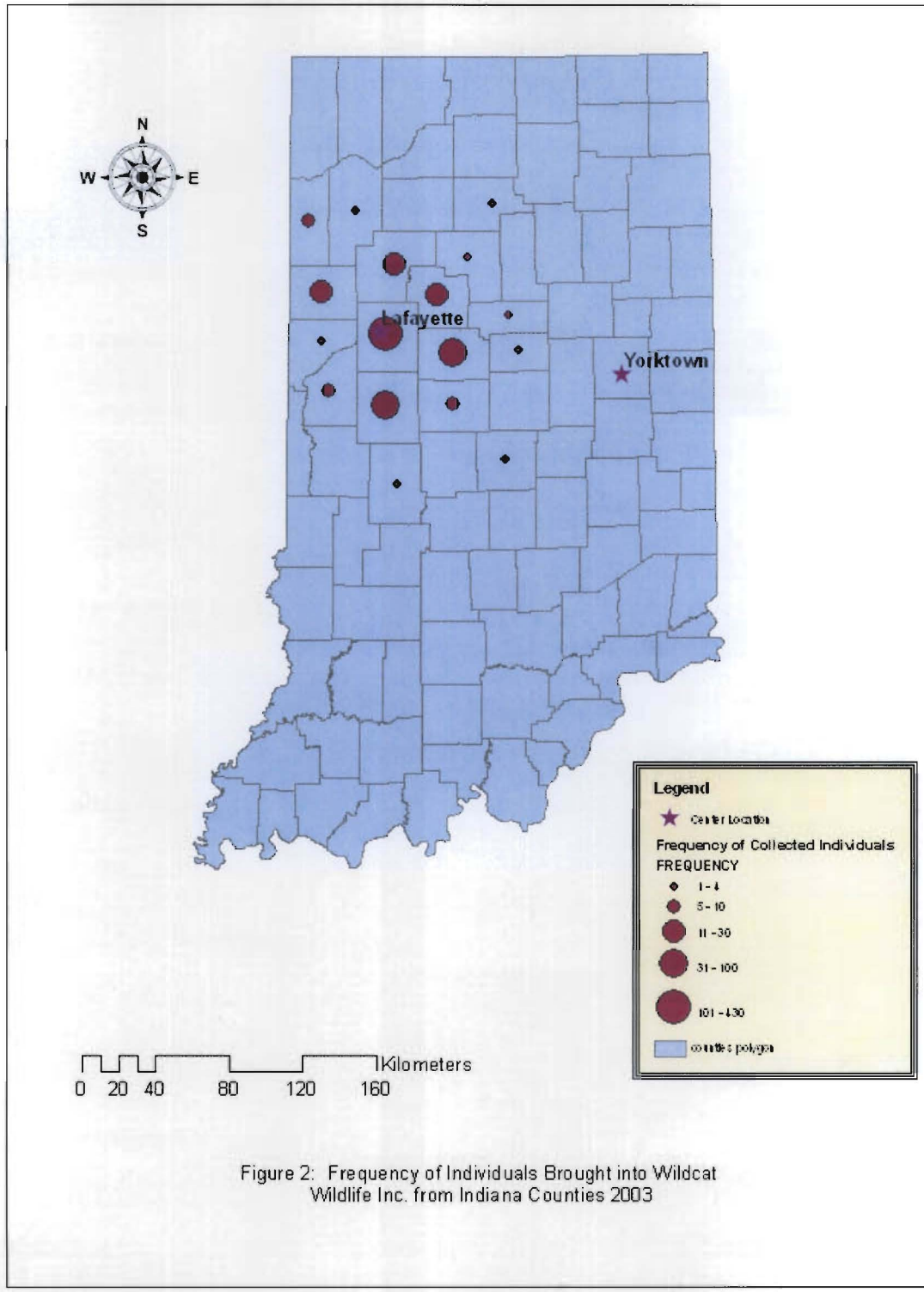

Figure 2: Frequency of Individuals Brought into Wildcat Wildlife Inc. from Indiana Counties 2003

Numbers and composition of avian rescues

Over the period of 2001-2003 a total of 2,041 birds were rescued by Wildcat Wildlife Center Inc. These individuals were identified to 93 different taxa. Meanwhile, 621 birds, identified to 64 different taxa, were rescued during 2001-2003 by Wildlife Resqu Haus Inc. The diversity in taxa admitted was consistently higher at Wildcat Wildlife Center Inc. (Figure 3). The number of avian individuals admitted to each center differed according to year (Appendices 1 and 38) and the number of taxa treated was much lower in individual years than over the three year period (Appendices 6 and 37).

Records of both centers confirmed the presence of some rare, threatened, and endangered species in North-Central Indiana. A Bald Eagle *(Haliaeetus leucocephalus)*, Short-eared Owl (*Asio flammeus*), and Osprey *(Asio flammeus*) were collected by Wildcat Wildlife Center Inc. (Appendix 36); meanwhile, Wildlife Resqu Haus Inc. reported treating a Bald Eagle and a Peregrine Falcon (*Falco peregrinus*) (Appendix 8).

Admissions listings were dominated by a few species that were consistently brought in. The most common species admitted to Wildcat Wildlife Center Inc. during 2001 were unidentified Sparrow sp., European Starling (*Sturnus vulgaris*), Mallard *(Anas platyrhynchos)*, American Robin *(Turdus migratorius*), Mourning Dove (*Zenaida macroura)*, and Common Grackle (*Quiscalus quiscula*). Individuals of these species comprised 58.88% of the total individuals of all species brought into Wildcat Wildlife Center Inc. during 2001. The most common species brought into Wildcat Wildlife Center Inc. during 2002 were House Sparrow *(Passer domesticus),* European Starling, Mallard, American Robin, Mourning Dove, and Great Horned Owl (*Bubo virginianus*). Individuals of these species included 59.29% of the total individuals of all species brought into Wildcat Wildlife Center Inc. during 2002. The most common species brought into Wildcat Wildlife Center Inc. during 2003 were House Sparrow,

European Starling, Mallard, American Robin, Mourning Dove, and Common Grackle. Individuals of these species comprised 50.09% of the total individuals of all species brought into Wildcat Wildlife Center Inc. during 2003. The most common species brought into Wildlife Resqu Haus Inc. during 2001-2003 were Red-tailed Hawk (*Buteo jamaicensis*), Eastern Screech Owl *(Otus asio)*, Mallard, American Robin, Mourning Dove, and Great Horned Owl. Individuals of these species comprised 49.11% of the total individuals of all species brought during this period.

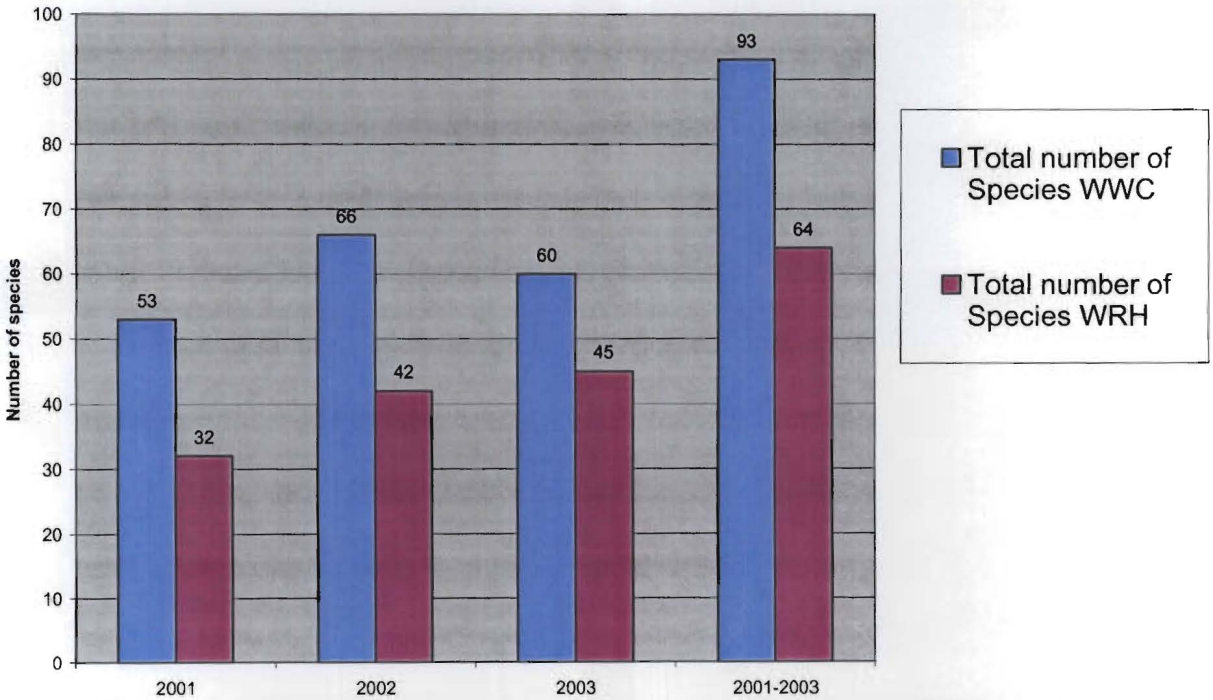

Figure 3: Total numbers of species treated at Wildcat Wildlife Center Inc. versus Wildlife Resqu Haus Inc. 2001-2003

Age of avian individuals admitted and associated variables

The most common age groups admitted to Wildcat Wildlife Center Inc. during 2002-2003 were hatchling/nestling non-raptor and adult non-raptor (Appendices 24 and 34, Figure 4 and 5). The least common age group admitted to Wildcat Wildlife Center Inc. during 2002-2003 was the egg (Appendices 24 and 34, Figure 4 and 5).

The age of the individual admitted was not independent of the month that the individual was admitted to Wildcat Wildlife Center Inc. during 2002 ($X^2 = 208.751$, DF = 11, $p<0.001$) or 2003 ($X^2 = 111.915$, DF = 11, $p<0.001$), nor the disposition of the individual admitted to Wildcat Wildlife Center Inc. during 2002 ($X^2 = 72.191$, DF = 1, $p<0.001$) or 2003 ($X^2 = 18.704$, DF = 1, $p<0.001$). The age of the individual admitted was also not independent of species identification of the individual for the six most common species admitted to Wildcat Wildlife Center Inc. during 2002 ($X^2 = 28.940$, DF = 5, $p<0.001$) or 2003 ($X^2 = 40.129$, DF = 5, $p<0.001$).

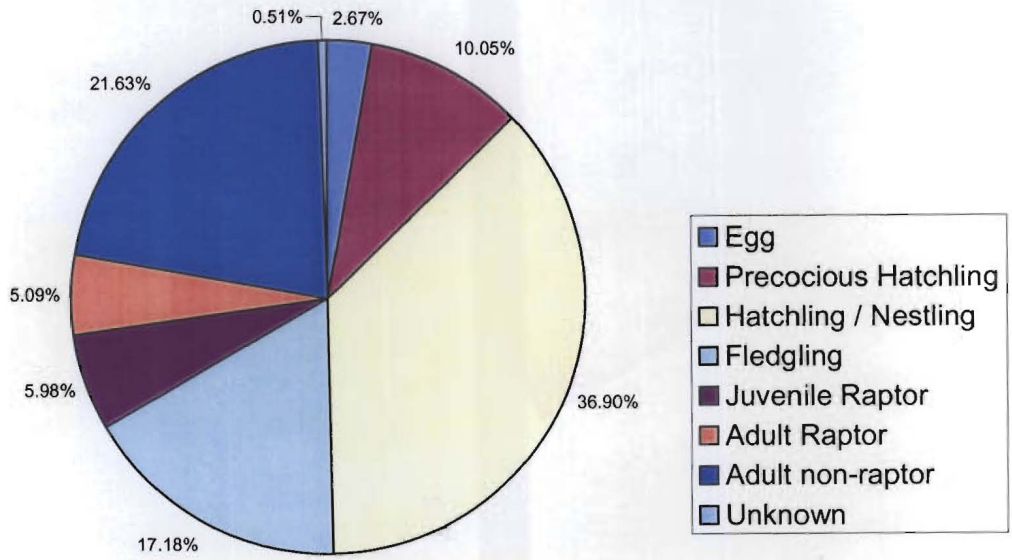

Figure 4: Age of individuals brought into Wildcat Wildlife Center Inc. during 2002

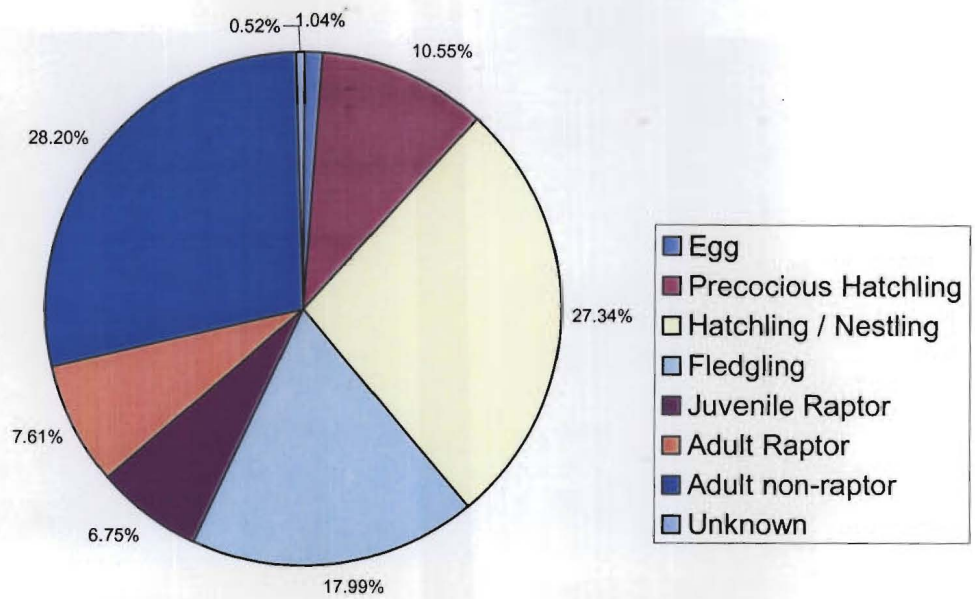

Figure 5: Age of individuals brought into Wildcat Wildlife Center Inc. during 2003

Disposition and release rate of avian individuals

Release rate varied greatly among species at both centers for all years (Appendices 7, 12, 20, 30, and 35). However, the disposition of the individual admitted was not independent of the species identification of the individual for the six most common individuals admitted to Wildcat Wildlife Center Inc. during 2002 ($X^2 = 68.580$, DF = 5, $p<0.001$). Results suggest that the disposition of the individual admitted was not independent of the species identification of the individual for the six most common individuals admitted to Wildcat Wildlife Center Inc. during 2003 ($X^2 = 10.648$, DF = 5, $p=0.059$), but more data are needed to verify this conclusion.

The disposition of the individual admitted was not independent of the cause of injury for the individual admitted to Wildcat Wildlife Center Inc. during 2002 ($X^2 = 78.982$, DF = 7, $p<0.001$) or 2003 ($X^2 = 40.277$, DF = 7, $p<0.001$).

The overall release rate at Wildcat Wildlife Center Inc. during 2001-2003 was 49.03%; meanwhile, the overall release rate at Wildlife Resqu Haus Inc. during 2001-2003 was 56.2% (Appendices 7 and 35, Figure 6). The release rate or the proportions of individuals released (versus those who died) differed among the two centers sampled ($X^2 = 8.373$, DF = 1, p=0.004).

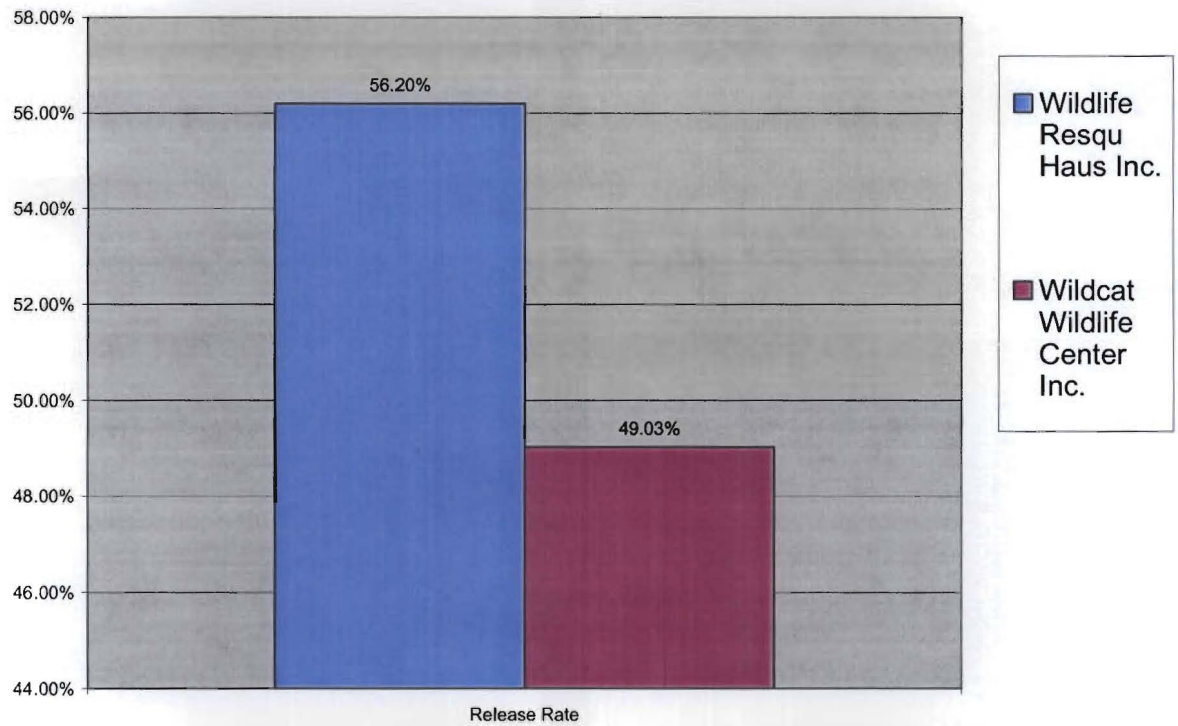

Figure 6: Overall release rate (%) for both centers 2001-2003

Reasons individuals were brought in for rehabilitation

Patterns can be observed in the reasons that the most common species were brought into both centers (Appendices 2, 16, and 26). For example, Mallards showed consistently high counts in the entrapment category at Wildcat Wildlife Center Inc. and Eastern Screech-Owl exhibited a high incidence of vehicle-related injury at Wildlife Resqu Haus Inc. (Appendices 16, 26, and 3). However, statistical tests failed to prove an association between the species of the individual and the cause of injury for all years and centers tested.

The proportions of overall individuals brought into both centers appear to be consistently high in the orphaned/fell from nest/abandoned category (Appendices 3, 16 and 26, Figure 7, 8, and 9). However, statistical tests show significant differences in the proportions of individuals falling into cause of injury categories per year at each center. The proportions of individuals brought into Wildcat Wildlife Center Inc. for the designated causes of injury differed among the years 2002 and 2003 ($X^2 = 21.293$, DF = 7, $p=0.003$). The proportions of individuals brought into Resqu House Inc. for the designated causes of injury differed between the years 2001-2003 ($X^2 = 39.988$, DF = 14, $p<0.001$).

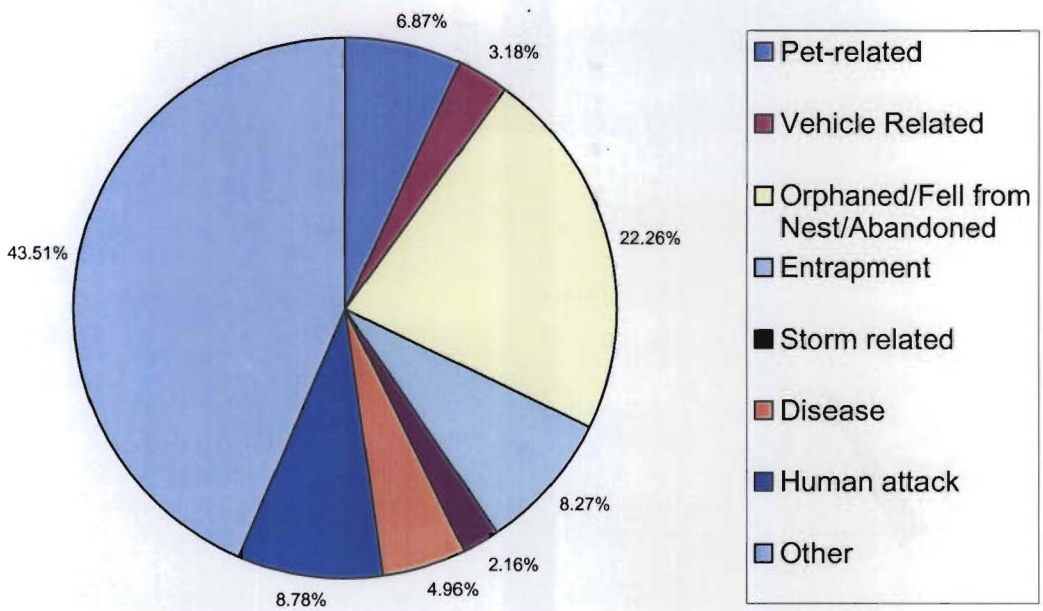

Figure 7: Cause of injury for all individuals brought into Wildcat Wildlife Center Inc. during 2002

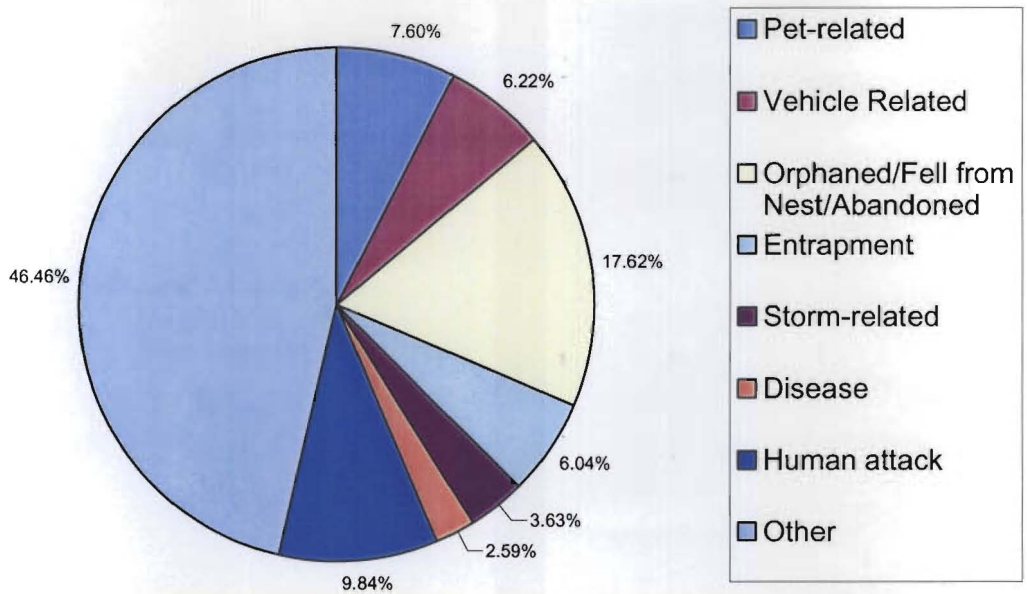

Figure 8: Cause of injury for all individuals brought into Wildcat Wildlife Center Inc. during 2003

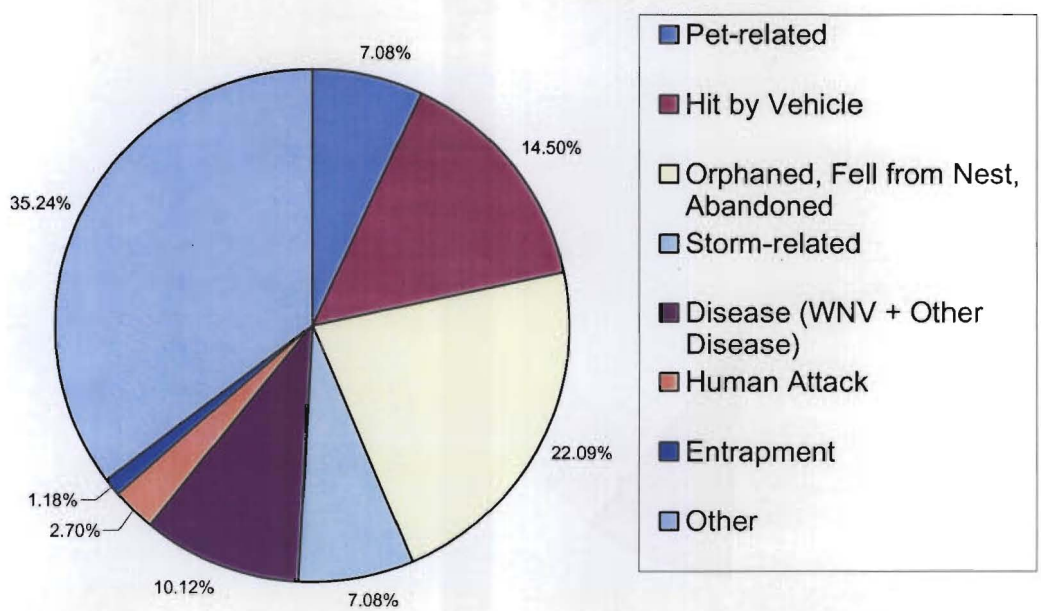

Figure 9: Cause of injury for all individuals brought into Wildlife Resqu Haus Inc. during 2001-2003

Seasonal aspects of individuals admitted

The highest proportion of individuals brought into Wildcat Wildlife Center Inc. (50.64% of all individuals admitted during 2002 (Figure 10) and 50.78% of all individual admitted during 2003 (Figure 11)) occurred during the months of May and June during the years 2002 and 2003 (Appendices 23 and 33). The lowest proportion of individuals brought into Wildcat Wildlife Center Inc. occurred during the months of November to February for the years 2002 and 2003. Individuals rescued during this period of 2002 comprised only 4.71% (Figure 10) of the total individuals rescued that year and individuals rescued from November to February made up only 8.98% (Figure 11) of the total individuals rescued during 2003. Despite these patterns, the proportions of individuals admitted to Wildcat Wildlife Center Inc. during each month differed among the years 2001-2003 ($X^2 = 64.663$, DF = 22, $p<0.001$).

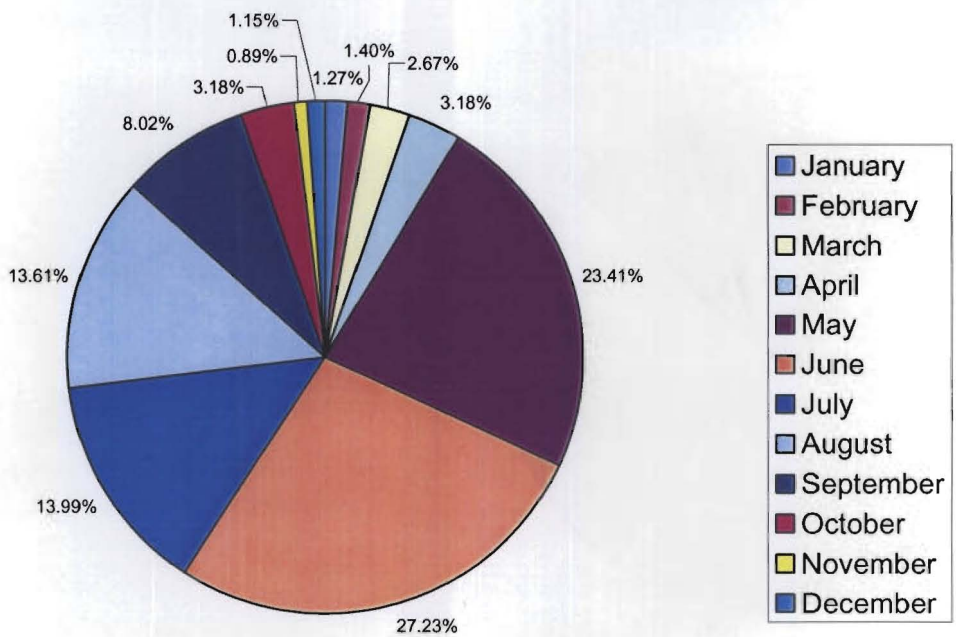

Figure 10: Monthly fluctuations in number of individuals brought into Wildcat Wildlife Center Inc. 2002

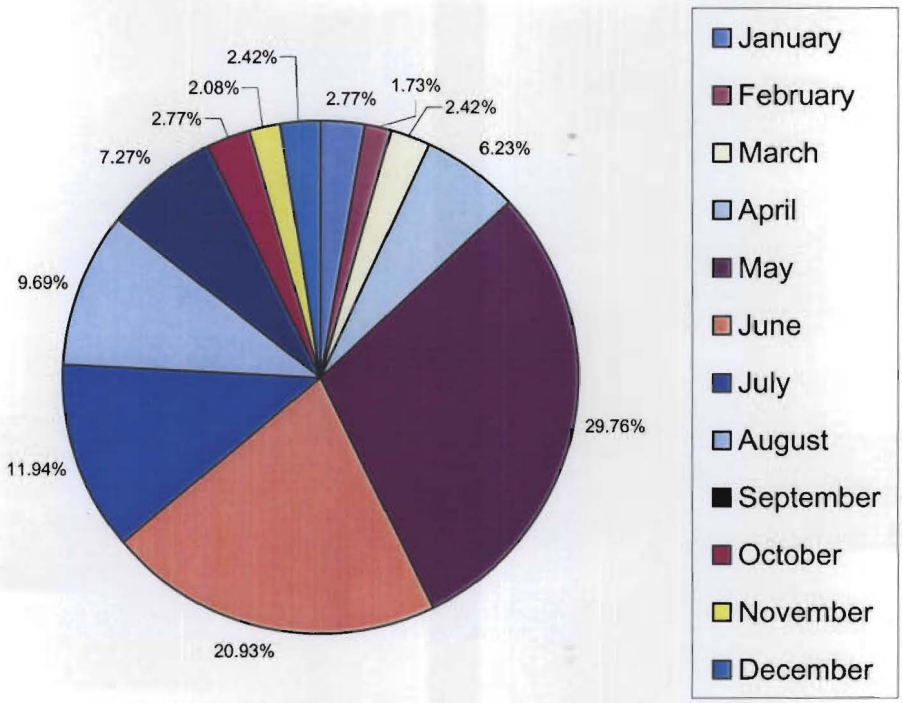

Figure 11: Monthly fluctuations in the number of individuals brought into Wildcat Wildlife Center Inc. during 2003

Type of rescuer

Most individuals (>89%) admitted to Wildlife Center Inc. were rescued by private citizens during the years of 2002-2003. However, the local county animal welfare league, humane society, department of natural resources, and the center itself were responsible for a small fraction (<11%) of the rescues (Appendices 22 and 32).

West Nile Virus

WNV showed the highest impact during the year of 2002 at Wildlife Resqu Haus Inc. (Appendix 3). A total of 11.92% of individuals brought in this year were inflicted or suspected to be inflicted by WNV. The virus had a huge impact on Red-tailed Hawks, affecting 40.9% of those brought in during 2001-2003. Great Horned Owls were also greatly affected with 21.2% of admissions attributable to the virus.

DISCUSSION

The Wildlife Resqu House Inc. and Wildcat Wildlife Center Inc. are only two of many (approximately 45) centers in Indiana, but similar activities are often performed by other Indiana rehabilitators, most of which exist in larger towns and cities. Thus, the degree to which these data may be considered as typical for this region is probably quite high.

The release rates found in this study (56.2% for Wildlife Resqu Haus Inc. and 49.03% for Wildcat Wildlife Center Inc.) are comparable to values obtained by other studies. Overall release rate was 55% for birds treated by 541 members of the NWRA in 1997 (NWRA 2001); meanwhile, the overall avian release rate ranged from 47%-59% in surveys done at 2-6 rehabilitation centers from 1995-1997 (DeVold 1997). The cause of injury and age group frequencies seen in this study are also comparable to those found by DeVold (1997). Human-related injury, pet attacks, vehicle-related injury, and orphans were among the highest ranking categories in this study, as well as, Devold's (1997); meanwhile, the same study found nestlings and fledglings to account for the bulk of avian admissions.

Most animals were collected fairly close to the center with frequencies of animals collected growing smaller as the distance from the center increased (Figures 1 and 2). This pattern is not surprising because few people are willing to drive over an hour to take a rescued animal to a rehabilitation center. The location data are obviously not very precise since the county information does not reveal the exact location of the animal when it was collected. Nevertheless, the purpose of these figures is to display the range of locations and frequency of individuals collected at these locations and brought to Wildcat Wildlife Center Inc.

Seasonal timing of records was not consistent throughout the year and was associated with age as expected. One may wonder if greater collection at certain times may be linked more

APPENDICES

Common names of avian species are according to Peterson (1990).

Wildlife Resqu Haus Inc.

Delaware County, Muncie, IN

Summary of Avian Data: 2001-2003

(Shaffer 2001-2003)

Appendix 1: Total Number of Avian Individuals Brought Into Rehabilitation Center

	Time Period			
Number of Individuals	2001	2002	2003	2001-2003
	166	218	237	621

Appendix 2: Most Common Avian Species Brought Into Rehabilitation Center

Species	Number of ind. 2001	Number of ind. 2002	Number of ind. 2003	Number of ind. 2001-2003	% of Total Number of ind. (2001-2003)
American Robin	20	25	34	79	12.70%
Great Horned Owl	10	21	16	47	7.50%
Red-tailed Hawk	8	23	13	44	7.10%
Mourning Dove	20	23	13	44	7.10%
Eastern Screech-Owl	16	13	20	49	7.90%
Mallard	12	10	20	42	6.80%
Total Ind. Of 6 Most Common Sp.	86	115	116	305	49.11%
% Total Common Sp. of Total ind.	51.81	52.75	48.95	49.11	

Appendix 3: Cause of Injury for Most Common Avian Species That Were Brought Into Rehabilitation Center (#)

Species	Cause of Injury									
	Pet-related	Hit by Vehicle	Orphaned, Fell from Nest, Abandoned	Storm-related	Disease (WNV + Other Disease)	WNV	Human Attack	Entrapment	Other	Total
American Robin	11	4	19	14	3	0	2	3	23	79
Great Horned Owl	0	8	1	3	15	10	2	2	6	47
Red-tailed Hawk	0	8	0	3	18	14	0	0	1	44
Mourning Dove	7	11	15	5	4	1	5	0	14	62
Eastern Screech-Owl	1	24	7	3	1	0	7	0	6	49
Mallard	1	11	18	0	2	0	1	0	9	42
All Species (2001-2003)	42	86	131	42	60	28	16	7	209	621
All Species 2001	13	33	44	6	4	0	7	1	58	166

All Species 2002	17	21	41	11	33	26	4	3	62	218
All Species 2003	12	32	46	25	23	2	5	3	89	237

Appendix 4: Cause of Injury for Most Common Avian Species That Were Brought Into Rehabilitation Center (%)

Species	Cause of Injury									
	Pet-related	Hit by Vehicle	Orphaned, Fell from Nest, Abandoned	Storm-related	Disease (WNV + Other Disease)	WNV	Human Attack	Entrapment	Other	
American Robin	13.9	5.1	24.1	17.7	3.8	0	2.53	3.79	29.11	
Great Horned Owl	0	17	2.1	6.4	31.91	21.2	4.25	4.26	12.77	
Red-tailed Hawk	0	18.2	0	6.8	47.73	40.9	0	0	2.27	
Mourning Dove	11.3	17.7	24.2	8.1	6.45	1.6	11.36	0	22.58	
Eastern Screech-Owl	2	49	14.3	6.1	2.04	0	14.29	0	12.24	
Mallard	2.4	26.1	42.9	0	4.76	0	2.38	0	21.43	
All Species	6.76	13.85	21.1	6.76	9.66	4.51	2.58	1.13	33.66	
All Species 2001	7.83	19.87	26.51	3.61	2.41	0	4.21	0.6	34.94	
All Species 2002	7.8	9.63	18.81	5.05	15.14	11.92	1.83	1.37	28.44	
All Species 2003	5.06	13.5	19.41	10.54	9.7	8.44	2.11	1.27	37.55	

Appendix 5: Least Common Species Brought Into Rehabilitation Center and Cause of Injury:

Species	Year	Cause of Injury
American Coot	2002	Misjudged landing
American Tree Sparrow	2003	Orphan (suspected)
Bald Eagle	2003	Trapped
Baltimore Oriole	2003	Nestling down after storm
Barn Swallow	2003	Down following storm
Black Vulture	2002	Abnormal behavior
Broad-winged Hawk	2003	WNV
Chipping Sparrow	2003	Flew into window
Chukar	2001	Unable to fly
Eastern Towhee	2002	WNV (West Nile virus)
Green Heron	2002	Multi-head
Indigo Bunting	2003	Hit by car
Muscovy Duck	2001	Unknown
Ovenbird	2001	Flew into window
Purple Finch	2003	Orphan (suspected)

Rose-breasted Grosbeak	2002	Hit by car
Savannah Sparrow	2003	Caught by Cat
Swainson's Thrush	2003	Unknown trauma
Tufted Titmouse	2003	Nestling down after storm
Turkey Vulture	2002	Unable to Fly
White-breasted Nuthatch	2002	Caught by Cat
Wild Turkey	2002	Orphan (suspected)

Appendix 6: Total Avian Species Brought Into the Rehabilitation Center

	2001	2002	2003	2001-2003
Number of Species	32	42	45	64

Appendix 7: Release Rates for All Species Brought into Rehabilitation Center

Species	Ind. Relased	Ind. That died	Release Rate
American Coot	0	1	0
American Crow	6	11	35.3
American Goldfinch	2	5	28.6
American Kestrel	13	5	72.2
American Robin	51	25	67.1
American Tree Sparrow	1	0	100
American Woodcock	2	3	40
Bald Eagle	1	0	100
Baltimore Oriole	1	0	100
Barn Swallow	0	1	0
Barred Owl	3	2	40
Black Vulture	Fate Unknown	Fate Unknown	Fate Unknown
Blue Jay	8	6	57.1
Broad-winged Hawk	0	1	0
Canada Goose	1	4	20
Carolina Chickadee	1	0	100
Carolina Wren	1	1	50
Cedar Waxwing	1	2	33.3
Chimney Swift	1	1	50
Chipping Sparrow	1	0	100
Chukar	Fate Unknown	Fate Unknown	Fate Unknown
Common Grackle	4	9	30.8
Common Nighthawk	3	6	33.3
Copper's Hawk	11	6	64.7

Downy Woodpecker	3	2	60
Eastern Screech-Owl	31	11	73.8
Eastern Towhee	0	1	0
European Starling	13	8	61.9
Great Blue Heron	0	3	0
Great Horned Owl	24	17	58.5
Green Heron	0	1	0
Hairy Woodpecker	0	1	0
House Finch	2	6	25
House Sparrow	8	6	57.1
House Wren	2	2	50
Killdeer	1	3	25
Long-eared Owl	0	2	0
Mallard	10	10	50
Mourning Dove	48	16	75
Muscovy Duck	Fate Unknown	Fate Unknown	Fate Unknown
Mute Swan	0	1	0
Northern (Yellow-shafted) Flicker	0	2	0
Northern Bobwhite	0	1	0
Northern Cardinal	4	7	36.3
Northern Mockingbird	1	1	50
Ovenbird	1	0	100
Peregrine Falcon	Fate Unknown	Fate Unknown	Fate Unknown
Pied-billed Grebe	3	1	75
Pigeon sp.	Fate Unknown	Fate Unknown	Fate Unknown
Purple Finch	0	1	0
Red-tailed Hawk	15	15	50
Red-winged Blackbird	2	1	66.6
Ring-necked Pheasant	2	0	100
Rock Pigeon	0	1	0
Rose-breasted Grosbeak	1	0	100
Ruby-throated Hummingbird	2	4	33.3
Savannah Sparrow	1	0	100
Sharp-shinned Hawk	2	4	33.3
Swainson's Thrush	0	1	0
Tufted Titmouse	0	1	0
Turkey Vulture	1	0	100
White-breasted Nuthatch	0	1	0
Wild Turkey	1	0	100
Wood Duck	1	9	10

Overall (518)	291	227	56.2

Appendix 8: Endangered Species Treated at Center (IDNR 2005)

Species	Status	Year Treated	Quantity
Bald Eagle	Federal Threatened	2003	1
Peregrine Falcon	State Endangered	2003	2

Wildcat Wildlife Center Inc.

Tippecanoe County, Lafayette, IN

Summary of Avian Data: 2001

(Albrecht 2001)

Appendix 9: Six Most Common Species Brought into the Center 2001

Species	Number of ind.	% of total
Sparrow, unidentified sp.	83	12.28%
European Starling	82	12.13%
Mallard	76	11.24%
American Robin	66	9.76%
Mourning Dove	50	7%
Common Grackle	41	6.07%
Total ind. of 6 most common species	398	58.88%
Total avian individuals 2001	676	100.00%

Appendix 10: Least Common Species Brought into Center during 2001 and Cause of Injury

Species	Total
Bald Eagle	1
Barn Swallow	1
Great Blue Heron	1
Gray Catbird	1
Hooded Merganser	1
Northern Flicker	1
Peacock	1
Pileated Woodpecker	1
Red-shouldered Hawk	1
Ring-necked Dove	1
Rough-legged Hawk	1
Ruby-throated Hummingbird	1

Swainson's Thrush	1		
Tufted Titmouse	1		
Warbler, unidentified sp.	1		
White-breasted Nuthatch	1		
Woodpecker, unidentified sp.	1		
Appendix 11: Total avian species treated at the Center during 2001			
Total	53		
Appendix 12: Release Rates for All Species Brought into Rehab Center during 2001			
Species	Lived (Released)	Died	Release rate %
American Crow	1	5	16.69
American Goldfinch	1	6	14.29
American Kestrel	1	3	25
American Robin	35	31	53.03
Bald Eagle	0	1	0
Barn Swallow	0	1	0
Barred Owl	5	3	62.5
Blue Jay	6	5	54.5
Canada Goose	1	3	25
Cedar Waxwing	8	3	72.7
Chimney Swift	4	4	50
Chipping Sparrow	0	2	0
Common Grackle	21	20	51.2
Common Nighthawk	0	7	0
Cooper's Hawk	1	6	14.3
Domestic Duck	3	3	50
Downy Woodpecker	1	2	33.3
Eastern Bluebird	1	6	14.3
Eastern Meadowlark	1	2	33.3
Eastern Screech-Owl	6	3	66.7
European Starling	58	23	71.6
Gray Catbird	0	1	0
Great Blue Heron	0	1	0
Great Horned Owl	9	11	45
Green Heron	1	1	50
Hooded Merganser	0	1	0
House Finch	6	21	22.2
House Sparrow	3	6	33.3
Hummingbird, unidentified sp.	0	3	0
Killdeer	2	1	66.7

Mallard	51	24	68
Mourning Dove	23	28	45.1
Northern (Yellow-shafted) Flicker	0	2	0
Northern Cardinal	6	9	40
Northern Flicker	1	0	100
Northern Rough-winged Swallow	0	2	0
Peacock	0	1	0
Pigeon sp.	6	10	37.5
Pileated Woodpecker	0	1	0
Red-tailed Hawk	3	11	21.4
Red-winged blackbird	1	1	50
Ring-necked Dove	Fate Unknown	Fate Unknown	Fate Unknown
Rough-legged Hawk	Fate Unknown	Fate Unknown	Fate Unknown
Ruby throated Hummingbird	0	1	0
Sparrow, unidentified sp.	59	24	71.1
Swainson's Thrush	0	1	0
Tufted Titmouse	0	1	0
Turkey Vulture	0	2	0
Warbler, unidentified sp.	0	1	0
White-breasted Nuthatch	0	1	0
Wood Duck	2	2	50
Woodpecker, unidentified sp.	0	1	0
Wren sp.	2	11	15.4

Appendix 13: Overall Disposition Rates for 2001

Fate	Disposition	Number of ind.	% of total
Lived	Placed (Domestics)	3	0.44
	Released	335	49.56
Died	Euthenized	100	14.79
	Natural Death	220	32.54
Unknown, Pending, Transfers	Unknown, Pending, etc.	17	2.51
Total	Total	676	100

Appendix 14: Monthly Fluctuations in Number of Individuals Brought in During 2001

Month	Number of ind.	% of total
January	14	2.07
February	5	0.74
March	13	1.92
April	43	6.36
May	158	23.37
June	212	31.36

July	102	15.09							
August	58	8.58							
September	31	4.59							
October	13	1.92							
November	15	2.21							
December	11	1.68							
Total	676	100							

Wildcat Wildlife Center Inc.

Tippecanoe County, Lafayette, IN

Summary of Avian Data: 2002

(Albrecht 2002)

Appendix 15: Most Common Species Brought into the Center during 2002

Species	Number of ind.	% of total
House Sparrow	113	14.40%
European Starling	101	12.80%
Mallard	83	10.60%
American Robin	78	9.90%
Mourning Dove	55	7%
Great Horned Owl	36	4.60%
Total ind. of Common species	466	59.29%
Total avian 2002	786	100%

Appendix 16: Cause of Injury for Most Common Species and Overall Individuals That Were Brought into the Center during 2002 (Number of Individuals)

Species	Total	Pet-related	Vehicle Related	Orphaned/Fell from Nest/Abandoned	Entrapment	Storm related	Disease	Human attack	Other
House Sparrow	113	8	1	28	9	11	0	4	52
American Robin	78	12	0	28	0	2	0	5	31
European Starling	101	1	1	20	10	0	0	16	53
Mallard	83	1	4	18	41	0	0	13	6
Mourning Dove	55	7	1	12	2	0	4	3	26
Great Horned Owl	36	0	1	3	0	0	18	0	14
All species	786	54	25	175	65	17	39	69	342
		(34-cat, 20-dog)							

Appendix 17: Cause of Injury for Most Common Species and Overall Individuals That Were Brought into the Center during 2002 (Percent of Individuals)

Species	Total	Pet-related	Vehicle Related	Orphaned/Fell from Nest/Abandoned	Entrapment	Storm related	Disease	Human attack	Other
House Sparrow	113	7.08	0.88	24.78	7.96	9.73	0	3.54	46.02
American Robin	78	15.38	0	35.9	0	2.56	0	6.41	39.74
European Starling	101	1	1	19.8	9.9	0	0	15.84	52.48
Mallard	83	1.2	4.82	21.69	49.4	0	0	15.66	7.23
Mourning Dove	55	12.73	1.82	21.82	3.64	0	7.27	5.45	47.27
Great Horned Owl	36	0	2.78	8.33	0	0	50	0	38.89
All species	786	6.87	3.18	22.26	8.27	2.16	4.96	8.78	43.51

Appendix 18: Least Common Species Brought into the Center During 2002 and Cause of Injury

Species	Reason for treatment	Total
American Golden Plover	Unknown/Found	1
American Tree Sparrow	Unknown/Found	1
Barn Swallow	Impact	1
Black Scoter	Unknown/Found	1
Black Throated Blue Warbler	Impact	1
Chipping Sparrow	Unknown/Found	1
Domestic Fancy Rooster	Unknown/Found	1
Green Heron	Unknown/Found	1
Hairy Woodpecker	Unknown/Found	1
Killdeer	Unknown/Found	1
Kinglet sp.	Unknown/Found	1
Lesser Scaup	Predator Attack	1
Nuthatch sp.	Unknown/Found	1
Pileated Woodpecker	Unknown/Found	1
Merlin	Unknown/Found	1
Ring-necked Pheasant	Hit by Vehicle	1
Scarlet Tanager	Hit by Vehicle	1
Sharp-shinned Hawk	Predator Attack	1
Short-eared Owl	Unknown/Found	1
Snowy Owl	Unknown/Found	1

Appendix 19: Total Avian Species Treated at the Center During 2002

Total	66

Appendix 20: Release Rates for All Species Brought into the Center During 2002

Species	Ind. Released	Ind. that died	Release rate
American Coot	1	2	33.3
American Crow	0	15	0

American Golden Plover	0	1	0
American Kestrel	12	7	63.2
American Robin	52	24	68.4
American Tree Sparrow	0	1	0
Barn Swallow	0	1	0
Barred Owl	2	0	100
Black Scoter	1	0	100
Black-throated Blue Warbler	0	1	0
Blue Jay	4	5	44.4
Broad-winged Hawk	0	1	0
Brown Thrasher	2	2	50
Canada Goose	2	9	18.2
Cedar Waxwing	2	0	100
Chimney Swift	0	5	0
Chipping Sparrow	0	1	0
Common Grackle	11	5	68.8
Common Loon	1	0	100
Common Nighthawk	0	5	0
Coopers Hawk	2	3	40
Cowbird	1	1	50
Domestic Duck	1	3	25
Domestic Fancy Rooster	1	0	100
Downy Woodpecker	1	1	50
Eastern Bluebird	0	5	0
Eastern Screech-Owl	10	3	76.9
European Starling	67	32	67.7
Flycatcher sp.	0	1	0
Goldfinch sp.	3	2	60
Gray Catbird	0	3	0
Great Blue Heron	0	3	0
Great Horned Owl	5	25	16.7
Green Heron	0	1	0
Hairy Woodpecker	0	1	0
Horned Lark	2	0	100
House Finch	7	5	58.3
House Sparrow	64	47	57.7
Hummingbird sp.	1	2	33.3
Killdeer	1	0	100
Kinglet sp.	0	1	0
Lesser Scaup	0	1	0
Mallard	74	7	91.4
Merlin	0	1	0
Mourning Dove	21	32	39.6

Northern (Yellow-shafted) Flicker	4	4	50
Northern Cardinal	5	8	38.5
Nuthatch sp.	0	1	0
Pigeon sp.	10	13	43.5
Pileated Woodpecker	0	1	0
Quail sp.	3	3	50
Red-tailed Hawk	6	12	33.3
Red-winged Blackbird	1	1	50
Ring-necked Pheasant	1	0	100
Rough-legged Hawk	0	5	0
Ruby throated Hummingbird	2	1	66.7
Scarlet Tanager	1	0	100
Sharp-shinned Hawk	0	1	0
Short-eared Owl	0	1	0
Snowy Owl	0	1	0
Warbler sp.	1	2	33.3
Wild Turkey	1	1	50
Wood Duck	0	5	0
Wren sp.	5	24	17

Appendix 21: Overall Disposition Rates of Individuals of All Species brought in During 2002

Fate	Disposition	Number of ind.	% of total
Lived	Placed (Domestics)	2	0.25
	Released	403	51.27
Died	Euthenized	115	14.63
	Natural Death	254	32.32
Unknown, Pending, Transfers, Escaped		12	1.53
Total	Total	786	100

Appendix 22: Type of Rescuer 2002

Rescuer	Number	% of Total
Wildcat Wildlife Center	11	1.4
Other or Unknown	14	2.42
Montgomery Co. Animal Welfare	4	0.51
Clinton Humane Society	1	0.13
Private Citizen	751	95.55
Total	786	100

Appendix 23: Monthly Fluctuations in Number of Individuals Brought in During 2002

Month	Number of ind.	% of total
January	10	1.27
February	11	1.4
March	21	2.67
April	25	3.18
May	184	23.41
June	214	27.23
July	110	13.99
August	107	13.61
September	63	8.02
October	25	3.18
November	7	0.89
December	9	1.15
Total	786	100

Appendix 24: Ages of Individuals Brought in During 2002

Age	Number of ind.	% of total
Egg	21	2.67
Precocious Hatchling	79	10.05
Hatchling / Nestling	290	36.89
Fledgling	135	17.18
Juvenile Raptor	47	5.98
Adult Raptor	40	5.09
Adult non-raptor	170	21.63
Unknown	4	0.51
Total	786	100

Wildcat Wildlife Center Inc.

Tippecanoe County, Lafayette, IN

Summary of Avian Data: 2003

(Albrecht 2003)

Appendix 25: Most Common Species Brought into the Center During 2003

Species	Number of ind.	% of Total
European Starling	62	10.71%
American Robin	60	10.36%
Mallard	57	9.90%

Mourning Dove	54	9%
House Sparrow	34	5.87%
Common Grackle	23	3.97%
Total ind. - 6 most common sp.	290	50.09%
Total avian 2003	579	100.00%

Appendix 26: Cause of Injury for Most Common Species and Overall Ind. That Were Brought into the Center during 2003 (Number of Individuals)

Species	Total	Pet-related	Vehicle Related	Orphaned/Fell from Nest/Abandoned	Entrapment	Storm-related	Disease	Human attack	Other
House Sparrow	34	3	1	7	0	2	1	0	20
American Robin	60	9	4	15	3	11	2	3	13
European Starling	62	4	3	11	6	0	0	20	18
Mallard	57	1	6	8	12	0	1	12	17
Mourning Dove	54	8	2	5	5	2	7	1	24
Common Grackle	23	5	0	11	0	0	0	0	7
All species	579	44	36	102	35	21	15	57	269
		(29-cat,15-dog)							

Appendix 27: Cause of Injury for Most Common Species and Overall Ind. That Were Brought into the Center during 2003 (Percent of Individuals)

Species	Total	Pet-related	Vehicle Related	Orphaned/Fell from Nest/Abandoned	Entrapment	Storm related	Disease	Human attack	Other
House Sparrow	34	8.82	2.94	20.59	0	5.88	2.94	0	58.82
American Robin	60	15	6.67	25	5	18.33	3.33	5	21.67
European Starling	62	6.45	4.84	17.74	9.68	0	0	32.26	29.03
Mallard	57	1.75	10.53	14.04	21.05	0	1.75	21.05	29.82
Mourning Dove	54	14.81	3.7	9.26	9.26	3.7	12.96	1.85	44.44
Common Grackle	23	21.74	0	47.83	0	0	0	0	30.43
All species	579	7.6	6.22	17.62	6.04	3.63	2.59	9.84	46.46
		(5.01-Cat 2.59-Dog)							

Appendix 28: Least Common Species Brought into the Center during 2003 and Cause of Injury

Species	Reason for treatment	Total
American Crow	Unknown/Found	1
Barn Swallow	Entrapment	1
Belted Kingfisher	Unknown/Found	1
Carolina Chickadee	Impact	1
Cliff Swallow	Hit by Moving Vehicle	1
Common Loon	Impact	1
Kinglet sp.	Orphaned	1
Northern Saw-whet Owl	Unknown/Found	1
Osprey	Impact	1
Ovenbird	Impact	1

Purple Finch	Unknown/Found	1	
Red-shouldered Hawk	Unknown/Found	1	
Rose-breasted Grosbeak	Unknown/Found	1	
Gull sp.	Impact	1	
Tennessee Warbler	Unknown/Found	1	
Wild Muscovy	Unknown/Found	1	
Yellow-billed Cuckoo	Impact	1	

Appendix 29: Total Avian Species Treated at the Center During 2003

Total	60

Appendix 30: Release Rates for All Species Brought into the Center During 2003

Species	Ind. Released	Ind. that Died	Release rate %
American Coot	1	1	50
American Crow	0	1	0
American Goldfinch	4	10	28.6
American Kestrel	7	5	58.3
American Robin	29	31	48.3
American Woodcock	0	2	0
Baltimore Oriole	0	4	0
Barn Swallow	0	1	0
Barred Owl	1	3	25
Belted Kingfisher	0	1	0
Blue Jay	2	2	50
Brown Thrasher	0	3	0
Canada Goose	1	7	12.5
Carolina Chickadee	1	0	100
Cedar Waxwing	2	1	66.7
Chimney Swift	2	2	50
Chipping Sparrow	1	1	50
Cliff Swallow	0	1	0
Common Grackle	13	10	56.5
Common Loon	1	0	100
Common Nighthawk	1	2	33.3
Coopers Hawk	2	7	22.2
Domestic Duck	3	0	100
Downy Woodpecker	3	2	60
Eastern Bluebird	3	0	100
Eastern Kingbird	1	2	33.3
Eastern Screech-Owl	16	6	72.7
European Starling	28	34	41.2

Great Blue Heron	0	3	0
Great Horned Owl	3	13	18.8
Green Heron	0	2	0
Gray Catbird	1	1	50
House Finch	4	5	44.4
House Sparrow	13	20	39.4
Killdeer	0	3	0
Kinglet sp.	0	1	0
Mallard	36	21	63.2
Mourning Dove	19	35	35.2
Northern Cardinal	2	6	25
Northern Flicker	2	1	66.7
Northern Saw-whet Owl	0	1	0
Osprey	0	1	0
Ovenbird	1	0	100
Pigeon sp.	10	9	52.6
Pileated Woodpecker	1	1	50
Purple Finch	1	0	100
Red-shouldered Hawk	0	1	0
Red-tailed Hawk	6	11	35.3
Rose-breasted Grosebeak	0	1	0
Rough-legged Hawk	0	2	0
Ruby- throated Hummingbird	3	3	50
Tennessee Warbler	0	1	0
Turkey Vulture	0	4	0
Unidentified Sparrow	11	9	55
Warbler sp.	0	2	0
White-throated Sparrow	1	1	50
Wild Muscovy	1	0	100
Wood Duck	3	23	11.5
Wren sp.	0	10	0
Yellow-billed Cuckoo	0	1	0

Appendix 31: Overall Disposition Rates of Individuals of All Species brought in During 2003

Fate	Disposition	Number of ind.	% of total
Lived	Placed (Domestics)	3	0.52
	Released	235	40.59
Died	Euthenized	100	17.27
	Natural Death	237	40.93
Unknown, Pending, Transfers	U, P, T	4	0.69
Total	Total	579	100

Appendix 32: Type of Rescuer 2003

Rescuer	Number of ind.	% of Total
WWC	39	6.74
Other or Unknown	15	2.76
Montgomery Co. A. W. L.	8	1.38
Clinton Humane Society	1	0.17
DNR	2	0.35
Private Citizen	513	88.6
Total	579	100

Appendix 33: Monthly Fluctuations in Number of Individuals Brought in During 2003

Month	Number of ind.	% of Total
January	16	2.76
February	10	1.73
March	14	2.42
April	36	6.22
May	172	29.88
June	121	20.9
July	69	11.92
August	56	9.67
September	42	7.25
October	16	2.76
November	12	2.07
December	14	2.42
Total	579	100

Appendix 34: Ages of Individuals Brought in During 2003

Age	Number of ind.	% of Total
Egg	6	1.04
Precocious Hatchling	61	10.54
Hatchling / Nestling	158	27.29
Fledgling	104	17.96
Juvenile Raptor	39	6.74
Adult Raptor	44	7.6
Adult non-raptor	163	28.15
Unknown	3	0.69
Total	579	100

Wildcat Wildlife Center Inc.
Tippecanoe County, Lafayette, IN
Summary of Avian Data: 2001-2003

Appendix 35: Release Rates for All Species Brought into the Center 2001-2003

Species	Ind. Released	Ind. that Died	Release rate
American Coot	2	3	40
American Crow	1	21	4.76
American Golden Plover	0	1	0
American Goldfinch	8	18	30.77
American Kestrel	20	15	57.14
American Robin	116	86	57.43
American Tree Sparrow	0	1	0
American Woodcock	0	2	0
Bald Eagle	0	1	0
Baltimore Oriole	0	4	0
Barn Swallow	0	3	0
Barred Owl	8	6	54.14
Belted Kingfisher	0	1	0
Black Scoter	1	0	100
Black-throated Blue Warbler	0	1	0
Blue Jay	12	12	50
Broad-winged Hawk	0	1	0
Brown Thrasher	2	5	28.57
Brown-headed Cowbird	1	1	50
Canada Goose	4	19	21.05
Carolina Chickadee	1	0	100
Cedar Waxwing	12	4	75
Chimney Swift	6	11	35.29
Chipping Sparrow	1	4	20
Cliff Swallow	0	1	0
Common Grackle	45	35	56.25
Common Loon	2	0	100
Common Nighthawk	1	12	8.33
Cooper's Hawk	5	16	23.81
Domestic Duck	7	6	53.85
Domestic Fancy Rooster	1	0	100
Downy Woodpecker	5	5	50
Eastern Bluebird	4	11	26.67
Eastern Kingbird	1	2	33.33
Eastern Meadowlark	1	2	33.33

Eastern Screech-Owl	32	12	72.73
European Starling	153	89	63.22
Flycatcher sp.	0	1	0
Gray Catbird	1	5	16.67
Great Blue Heron	0	7	0
Great Horned Owl	17	49	25.76
Green Heron	1	4	20
Hairy Woodpecker	0	1	0
Hooded Merganser	0	1	0
Horned Lark	2	0	100
House Finch	17	31	35.42
House Sparrow	80	73	52.29
Hummingbird sp.	1	5	16.67
Killdeer	3	4	42.86
Kinglet sp.	0	2	0
Lesser Scaup	0	1	0
Mallard	161	52	75.59
Merlin	0	1	0
Mourning Dove	63	95	39.87
Northern (Yellow-shafted) Flicker	4	6	40
Northern Cardinal	13	23	36.11
Northern Flicker	3	1	75
Northern Rough-winged Swallow	0	2	0
Northern Saw-whet Owl	0	1	0
Nuthatch sp.	0	1	0
Osprey	0	1	0
Ovenbird	1	0	100
Peacock	0	1	0
Pigeon sp.	26	32	44.83
Pileated Woodpecker	1	3	25
Purple Finch	1	0	100
Quail sp.	3	3	50
Red-shouldered Hawk	0	1	0
Red-tailed Hawk	15	34	30.61
Red-winged Blackbird	2	2	50
Ring-necked Pheasant	1	0	100
Rose-breasted Grosbeak	0	1	0
Rough-legged Hawk	0	7	0
Ruby-throated Hummingbird	5	5	50
Scarlet Tanager	1	0	100
Sharp-shinned Hawk	0	1	0
Short-eared Owl	0	1	0
Snowy Owl	0	1	0

Sparrow, Unidentified sp.	70	33	67.96						
Swainson's Thrush	0	1	0						
Tennessee Warbler	0	1	0						
Tufted Titmouse	0	1	0						
Turkey Vulture	0	6	0						
Warbler sp.	1	5	16.67						
White-breasted Nuthatch	0	1	0						
White-throated Sparrow	1	1	50						
Wild Muscovy	1	0	100						
Wild Turkey	1	1	50						
Wood Duck	5	30	14.29						
Woodpecker, Unidentified sp.	0	1	0						
Wren	7	46	13.21						
Yellow-billed Cuckoo	0	1	0						
Overall	960	998	49.03						

Appendix 36: Endangered/Threatened Species Treated at Center 2001-2003 (IDNR 2005)

Species	Status	Year treated	Quantity
Bald Eagle	Federal Threatened	2001	1
Short-eared Owl	State Endangered	2002	1
Osprey	State Endangered	2003	1

Appendix 37: Types of Species Treated 2001-2003

	2001	2002	2003	2001-2003
Total Types of Species	53	66	60	93

Appendix 38: Number of Individuals Admitted to Center 2001-2003

	2001	2002	2003	2001-2003
Number of Individuals	676	786	579	2041